forming hexagonal prisms with rhombohedral terminations, almost undistinguishable from each other on account of their extreme similarity. The two new compounds just announced in the current *Berichte* are the sodium compounds $NaBr + 2As_2O_3$ and $NaI + 2As_2O_3$. The former was obtained by dissolving 20 grammes arsenious oxide and 120 grammes sodium bromide in 350 c.c. boiling water, filtering the somewhat turbid liquid thus obtained, and allowing the clear solution to cool very slowly. On suspending in it a plate of cold glass, crystals of the compound were immediately deposited upon it, which proved on microscopic examination to consist of the hexagonal prisms common to the whole series. The crystals were then washed upon the large glass plate with cold water, dried superficially between filter-paper, afterwards at 130°, and submitted to analysis. The numbers obtained indicate the formula given above. The crystals, as in the case of many other double compounds, are decomposed into their constituents by contact with warm water. The second compound, $NaI + 2As_2O_3$, was similarly obtained, using 60 grammes sodium iodide, 22 grammes arsenious oxide, and dissolving them in half a litre of hot water. On allowing a glass plate to stand twenty-four hours in the solution, it was found to be covered with six-sided prisms, apparently identical in shape with those of the other compounds of the series previously obtained. It is interesting that both these compounds can be readily obtained by the addition of a sufficient quantity of bromide or iodide of sodium to a solution of sodium arsenite. The corresponding compound with chloride of sodium has not yet been prepared. Thus another series of analogous salts is added to the list of isomorphous groups, the number of which is steadily increasing. These groups are of especial interest to the crystallographer, inasmuch as they appear likely to be of invaluable assistance in our attempts to grasp the fundamental problem, "Why does a definite chemical compound crystallize in any particular system?"

THE County of Middlesex Natural History and Science Society has issued its Transactions during the session 1887-88. The volume includes, besides an abstract of an introductory address by Dr. Archibald Geikie, papers on subjects of scientific interest by Prof. Flower, Mr. W. Lant Carpenter, Dr. Sydney T. Klein, and others.

THE new number of the Journal of the Anthropological Institute (vol. xviii. No. 2) is one of great interest. Mr. Galton offers some suggestive remarks on replies by teachers to questions respecting mental fatigue, and Mr. J. Venn has a careful paper on "Cambridge Anthropometry." In a paper on the races of the Babylonian Empire, Mr. G. Bertin sets forth some conclusions which are so different from, and even opposed to, "accepted notions," that he hesitated a long time, he says, "before surrendering himself to the evidence."

DR. H. TEN KATE, in a letter to *Science*, expresses dissent from the opinions lately set forth by Dr. Daniel G. Brinton, as to "the alleged Mongolian affinities of the American race." Dr. Brinton holds that there are no such affinities, whereas to his opponent it seems obvious that the native race of America cannot be properly understood without reference to the Mongolians. Summing up his views on the subject, Dr. H. Ten Kate says:—"I wish to say that Dr. Brinton's argumentation against the affinity between Americans and Mongolians is based upon entirely wrong reasoning. If the reasons he gives were correct, then the classification of the other races of the human species would be equally wrong; for in each of them peoples are grouped together, which, although related by physical characteristics, are linguistically and ethnologically entirely different from each other, not to speak of the difference in their psychological and social evolution. When I admit that the native Americans are Mongoloids, I do not necessarily imply that America has been populated from Asia or elsewhere. However, if we accept the theory of evolution, this is the most probable explanation of the observed facts. But, leaving the doubtful origin of the Americans, and of their languages and arts, out of the question, I maintain that there is a physical similarity, racial affinity, and relationship between the indigenous Americans and the Mongolians in the widest sense. This is, in the present state of anthropological knowledge, an undeniable fact. He who denies it does not believe in physical anthropology; and not to recognize this branch of science is equal to denying natural history in general."

IN the last Administration Report of the Island of Dominica, which has just been laid before Parliament, the President estimates the original Carib population at about three hundred, or something under that figure. The children are healthy, and the numbers of Caribs, according to their own accounts, are not decreasing, but they are gradually becoming so intermixed with the Negroes that the pure Carib, "Franc Carib," will soon be non-existent. The Carib quarter, a reserve of large extent on the Windward side of Dominica, is wholly occupied by them. They are very peaceable and retiring; they live on vegetables and fruits, which they cultivate, and on fish. They keep their roads in good order. Their children appear to be very intelligent, but there is no school in the Carib quarter, though the people are very anxious to have one.

A SOCIETY has been formed in France, under the patronage of many men of high scientific and political standing, for the purpose of developing a proper system of physical education. The leader of the new movement, is M. Philippe Daryl, *alias* Paschal Grousset, who, when a very young man, took an active part in the Paris insurrection of 1871. He afterwards lived in England, whence he sent interesting letters to the *Temps*.

THE *Madras Mail* says that Dr. Thurston, the Superintendent of the Madras Museum, has been requested by the Board of Revenue to visit various electrical establishments in Europe in order to select an electric globe light to shine in twenty fathoms of water. Such a light has long been wanted at the pearl fisheries, for, up to the present, the work of the fisheries has been confined to banks situated at a less depth than twenty fathoms.

THE next *conversazione* of the Royal Microscopical Society will be held on Wednesday, the 28th instant, at 8 o'clock.

THE additions to the Zoological Society's Gardens during the past week include a —— Monkey (*Cercopithecus* sp. inc.) from South Africa, presented by Mr. L. B. Lewis; an Indian Antelope (*Antilope cervicapra* ♂) from India, presented by Mr. J. W. Shand-Harvey; a Himalayan Bear (*Ursus tibetanus* ♀) from Northern India, presented by the Regiment of the 2nd Life Guards; an Axis Deer (*Cervus axis*) from India, presented by Lady Donaldson; a Roseate Cockatoo (*Cacatua roseicapilla*) from Australia, presented by Mrs. Wood; two American Bitterns (*Botaurus lentiginosus*) from North America, presented by Mr. J. B. Williams; a Peregrine Falcon (*Falco peregrinus*), captured at sea, presented by Mr. R. H. Armstrong; a Spotted Salamander (*Salamander maculosa*), European, presented by Mr. F. E. B. Roper, F.Z.S.; two Swans (*Cygnus olor* ♀ ♀), European, a Royal Python (*Python regius*) from West Africa, deposited; two Golden Plovers (*Charadrius pluvialilis*), British, purchased.

OUR ASTRONOMICAL COLUMN.

THE BRAZILIAN TRANSIT OF VENUS EXPEDITIONS, 1882.—We have received vol. iii. of the "Annaes do Imperial Observatorio do Rio de Janeiro," containing the reports of the

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Brazilian expeditions to observe the transit of Venus of December 1882. The volume, which is a handsome quarto of some 750 pages, and is fully illustrated with photographs of the various stations and instruments, contains reports from three stations, the weather at the Imperial Observatory at Rio de Janeiro itself, which should have been a fourth station, having proved cloudy and wet. It had been at first intended to send an expedition to Cuba, but as the French astronomers were to occupy a position there, the little Island of St. Thomas, belonging to Denmark, was chosen instead. St. Thomas paired well with the southern station, Punta Arenas, in Patagonia, for the duration was much shortened at the former place and slightly lengthened at the latter, the sun being high at both stations, and ingress and egress at both taking place nearly symmetrically with regard to the meridian. The entire transit was also seen from the remaining station, Olinda, near Pernambuco, where ingress was somewhat retarded and egress much accelerated. The observations were all made by the method of projection, in order that the disturbing effects of irradiation might be got rid of as far as possible. The St. Thomas expedition which was under the command of Baron de Teffé, possessed three equatorials, and Dr. H. Draper had promised to supply a photoheliograph, but his lamented death prevented the carrying out of his generous intention. The Olinda expedition, commanded by M. J. de Oliveira Lacaille, had two equatorials; whilst M. Cruls, the chief of the Punta Arenas party, had but one; the largest telescope in each case being 6¼ inches in aperture. M. Cruls selected a site for his party within a mile of that occupied by Dr. Auwers with the German expedition; for the Brazilian Parliament having delayed the necessary credit for the expedition to the last moment, the expedition did not arrive at the place until late, and it seemed better to take advantage of the German choice of position rather than lose time by surveying for a fresh site at a distance. The observations at each of these three stations were successful, the second internal contact being observed at all, but the first internal contact was lost at St. Thomas. The method of chords could not, therefore, be employed, but the combination of the second contacts of the two northern stations with both contacts of the southern gave 8″·808 as the resulting parallax. A large part of the volume is devoted to a report of the voyage of the corvette *Parnahyba*, by Captain L. Saldanha de Gama, the captain who conveyed the southern observing party to their station, and to a description of the natural history of Tierra del Fuego.

THE TAIL OF COMET 1887 *a* (THOME).—Prof. Bredichin has discussed in the *Bulletin* of the Imperial Society of Naturalists of Moscow, 1888, Nos. 2 and 3, the observations of the direction of the tail of this comet. The comet was discovered by Mr. Thome, of Cordoba, on January 18, 1887, and it was remarkable for the smallness of its perihelion distance, the complete absence of any nuclear condensation in the head, and the length, straightness, and narrowness of the tail. Prof. Bredichin finds that the tail manifestly belongs to his third type, viz. those in which the repulsive force, $1 - \mu$, does not exceed 0·1. He suggests, as the rate of outflow in comets of short perihelion distance is much more rapid at perihelion passage than later, and as the comet was not discovered until a week after perihelion, that the lighter materials may already have been driven off and reduced to such a degree of tenuity as to be invisible, leaving only substances of heavy atomic weight. As is well known, he associates his first type of tail, that in which the repulsive force is greatest, with hydrogen, the more ordinary second type with the hydrocarbons; and he suggests in the case of the present comet that elements with atomic weights like those of gold, mercury, and lead, would furnish a tail of the character observed. Some comets, however, which do not approach the sun closely, have tails only of the third type. If, then, Prof. Bredichin's explanation is to be received in its entirety, hydrogen and hydrocarbons are not always constituents of cometary tails.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 NOVEMBER 25—DECEMBER 1.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on November 25

Sun rises, 7h. 38m.; souths, 11h. 47m. 19·0s.; sets, 15h. 57m.: right asc. on meridian, 16h. 6·7m.; decl. 20° 54′ S. Sidereal Time at Sunset, 20h. 17m.

Moon (at Last Quarter November 26, 17h.) rises, 21h. 1m.*, souths 4h. 56m.; sets, 12h. 40m.: right asc. on meridian, 9h. 14·7m.; decl. 18° 7′ N.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. on meridian. h. m.	Declination on meridian. ° ′
Mercury..	5 53 ...	10 38 ...	15 23 ...	14 57·0 ...	14 59 S.
Venus.....	10 37 ...	14 18 ...	17 59 ...	18 37·4 ...	25 2 S.
Mars......	11 30 ...	15 29 ...	19 28 ...	19 49·1 ...	22 32 S.
Jupiter....	8 32 ...	12 33 ...	16 34 ...	16 52·1 ...	22 6 S.
Saturn....	21 48*...	5 14 ...	12 40 ...	9 32·2 ...	15 37 N.
Uranus ...	3 31 ...	8 57 ...	14 23 ...	13 16·0 ...	7 23 S.
Neptune..	15 50 ...	23 35 ...	7 20*...	3 56·2 ...	18 39 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

Nov.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. °	°
26 ...	37 Leonis	... 6 ...	7 25	near approach	178	—
28 ...	B.A.C. 3996	... 6 ...	1 44	near approach	301	—
30 ...	B.A.C. 4572	... 6 ...	5 59	near approach	124	—

Nov. h.
25 ... 13 ... Saturn in conjunction with and 1° 31′ south of the Moon.
Dec.
1 ... 11 ... Saturn stationary.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·4 ...	81 16 N. ...	Nov. 25,	0 27	*m*
			,, 30,	0 6	*m*
S Arietis	2 9·8 ...	24 32 N. ...	Dec. 1,		*m*
λ Tauri...	3 54·5 ...	12 10 N. ...	Nov. 26,	20 44	*m*
			,, 30,	19 36	*m*
ζ Geminorum ...	6 57·5 ...	20 44 N. ...	,, 29,	2 0	*m*
R Canis Majoris ...	7 14·5 ...	16 12 N. ...	,, 25,	0 41	*m*
			,, 26,	3 57	*m*
U Monocerotis ...	7 25·5 ...	9 33 S. ...	,, 27,		*m*
U Hydræ	10 32·0 ...	12 48 S. ...	,, 26,		*m*
S Leonis	11 5·1 ...	6 4 N. ...	,, 30,		*M*
R Scuti	18 41·5 ...	5 50 S. ...	,, 29,		*M*
η Aquilæ	19 46·8 ...	0 43 N. ...	,, 29,	18 0	*m*
T Aquarii	20 44·0 ...	5 34 S. ...	,, 27,		*m*
T Vulpeculæ ...	20 46·7 ...	27 50 N. ...	,, 29,	21 0	*M*
			,, 30,	22 0	*m*
Y Cygni	20 47·6 ...	34 14 N. ...	,, 25,	2 18	*m*
			,, 28,	2 12	*m*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 25,	4 0	*M*
			,, 28,	21 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

The most interesting periodical shower of the week is that of the *Andromedes*, the stream connected with Biela's comet, but no remarkable display can be expected from it this year: max. Nov. 27; radiant about R.A. 25°, Decl. 44° N. Other showers of the week are as follow:—

	R.A. °	Decl. °	
Near λ Persei	60 ...	50 N. ...	Very swift.
,, β Canum Venaticorum	190 ...	42 N. ...	Swift; streaks.

GEOGRAPHICAL NOTES.

TWO letters relating to Dr. Nansen's expedition across Greenland have been published—one from Dr. Nansen himself to Mr. Augustin Gamel, Copenhagen, who is defraying the expenses of the expedition; the other from Mr. Sverdrup, one of Dr. Nansen's companions, to his father. The letters were sent forward from Godthaab by two *kajak*-men, who delivered them to the captain of the *Fox*, at Ivigtut. The following is a translation of Dr. Nansen's letter:—

GODTHAAB, *October* 4.

I have at last the great joy to report to you that Greenland has been successfully crossed from east to west. I regret that the very short time left to me before despatching my messengers will not permit any detailed account. I can just jot down a few words to be forwarded by the *kajak*-men. I am sending southwards in the hope of stopping the *Fox* at Ivigtut, and getting her to wait for us and take us home this autumn. But

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